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Office of Surveillance and Epidemiology**

Date: September 30, 2009  
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Office of the Commissioner

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Subject: Humira® (adalimumab) BPCA Drug Use Review

Drug Name(s): Humira® (adalimumab)

Application Type/Number: BLA 125057

Applicant/sponsor: Abbott Laboratories

OSE RCM #: 2009-1313

\*\*This document contains proprietary drug use data obtained by FDA under contract. The drug use data/information cannot be released to the public/non-FDA personnel without contractor approval obtained through the FDA/CDER Office of Surveillance and Epidemiology.\*\*

## EXECUTIVE SUMMARY

Using the currently available proprietary drug use databases licensed by the Agency, this review describes outpatient mail order and retail drug use patterns using healthcare claims data for Humira® (adalimumab). This review provided drug use data with a focus on the pediatric population (0-16 years) for the three 12-month periods from May 2006 to April 2009.

During the three 12-month periods from May 1, 2006 through April 30, 2009:

- Approximately 1 million claims were for Humira® during the examined time period. Claims for the pediatric population were extremely low, representing less than 1% of all claims for Humira® during May 2006 to April 2009.
- Approximately 100,000 unique patients were billed for Humira® during May 2006 to April 2009, according to healthcare claims. The pediatric population represented ~1.5% of the total patient population prescribed Humira®.
- The top diagnosis for Humira® in the pediatric population 0-16 years old was “Regional Enteritis Unspecified Site”.
- The top prescribing specialty of Humira® in patients 0-16 years old was “pediatrics” or pediatricians.

Use of Humira® (adalimumab) in the pediatric population (ages 0-5, 6-11 and 12-16 years) has remained consistently low throughout this review period.

## INTRODUCTION

This review examines utilization patterns for Humira® (adalimumab), a tumor necrosis factor (TNF) blocker indicated for the treatment of Rheumatoid Arthritis, Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Ankylosing Spondylitis, Crohn’s Disease, and Plaque Psoriasis. This review was conducted to assess utilization in the pediatric population in age bands of 0-5, 6-11, and 12-16 years old. Humira® (adalimumab) was sold primarily to outpatient channels through mail order and retail channels during the review period. This review focuses primarily on the utilization in the outpatient mail order and retail settings.

## 1 METHODS AND MATERIALS

### DETERMINING SETTINGS OF CARE AND DATA SOURCES USED

IMS Health, IMS National Sales Perspectives™ data (*see Appendix 1*) were used to determine the setting in which Humira® (adalimumab) was sold. Sales of this product by number of bottles (eaches) sold from the manufacturer into retail and non-retail channels of distribution were analyzed for the 12-month period ending in May 2009 (*data not provided*).<sup>1</sup> During the review period, outpatient channels of distribution, mail order and retail (chain stores, independent, and food stores) accounted for 58% and 35%, respectively, of Humira® (adalimumab) sales. Non-retail institutions such as federal hospitals accounted for ~8% of Humira® (adalimumab) during this time period. Thus, the examination of Humira® (adalimumab) utilization patterns focused on the outpatient mail order and retail settings using Wolters Kluwer SOURCE Lx® and custom reports from Wolters Kluwer®.

## 2 RESULTS

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<sup>1</sup> IMS Health, IMS National Sales Perspectives™, Year 2006-2009, extracted 7/09. File: 0907 HUMI.dvr

From May 2006 to April 2009, approximately 1 million claims were billed for Humira® (adalimumab). Of those claims, less than 1% of the total claims were for patients aged 0-16 year old. Although Humira® claims for the pediatric population nearly quadrupled from approximately 1,365 claims to 5,160 claims over the examined 3 year period, these claims account for a very small proportion of the total claims for Humira®. (*Appendix 2: Table 1*).

In terms of patient data, roughly 100,000 unique patients were billed for Humira® during the entire review period. For the pediatric population ages 0-5, 6-11 and 12-16 years, unique patients for Humira® (adalimumab) accounted for ~0.1%, ~0.3%, and ~1%, respectively, of the total number of unique patients for the entire review period. Patient trends reflected claims data trends for Humira® during the examined time period. (*Appendix 2: Table 2*).

The top diagnosis for Humira® in the pediatric population 0-16 years old was “Regional Enteritis Unspecified Site” at ~52% of the claims submitted for Humira® with a diagnosis. This diagnosis was followed by “Other Noninfectious Gastroenteritis” at ~24% and “Rheumatoid Arthritis” at ~22% of the claims submitted for Humira®. (*Appendix 2: Table 3*)

The top prescribing specialty of Humira® in patients 0-16 years old was “pediatrics” or pediatricians at ~21%. This was followed by “Pediatric Gastroenterology”, “Pediatric Rheumatology”, and “Rheumatology” at approximately 16%, 14%, and 12%, respectively. (*Appendix 2: Table 4*)

### 3 LIMITATIONS

Findings from this consult should be interpreted in the context of the known limitations of the databases used. We estimated Humira® (adalimumab) is distributed primarily to outpatient channels of distribution, mail order and retail settings based on the IMS Health, IMS National Sales Perspectives™. These data do not provide a direct estimate of use but do provide a national estimate of units sold from the manufacturer into the various channels of distribution. The amount of product purchased by these retail channels of distribution may be a possible surrogate for use, if we assume the facilities purchase drugs in quantities reflective of actual patient use.

There are patients in the claims data for product only that are not in the table with diagnosis and specialties because a medical claim or diagnosis does not exist for in our data for these patients. The difference in the totals for claims data can be referred to as “unspecified diagnosis” or “unspecified specialty”.<sup>2</sup>

### 4 CONCLUSIONS

Use of Humira® (adalimumab) in the pediatric population has remained consistently very low over the three 12 month periods from May 2006 to April 2009. Claims billed and patient data for the pediatric population accounted for 1% or less of the total share for Humira® (adalimumab) during the entire review period. The top diagnosis for Humira® in the pediatric population 0-16 years old was “Regional Enteritis Unspecified Site” and the top prescribing specialty was “pediatrics” or pediatricians. Use was too low to characterize actual trends between pediatric age groups.

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<sup>2</sup> Email Correspondence: Wolters Kluwer®; Tim Meekins, email: (Tim.Meekins@source.wolterskluwer.com), 9/14/2009. Re: Humira and Orencia.

## **APPENDIX 1: DATABASE DESCRIPTIONS**

### ***IMS Health, IMS National Sales Perspectives™: Retail and Non-Retail***

The IMS Health, IMS National Sales Perspectives™ measures the volume of drug products, both prescription and over-the-counter, and selected diagnostic products moving from manufacturers into various outlets within the retail and non-retail markets. Volume is expressed in terms of sales dollars, eaches, extended units, and share of market. These data are based on national projections. Outlets within the retail market include the following pharmacy settings: chain drug stores, independent drug stores, mass merchandisers, food stores, and mail service. Outlets within the non-retail market include clinics, non-federal hospitals, federal facilities, HMOs, long-term care facilities, home health care, and other miscellaneous settings.

### ***Wolters Kluwer SOURCE Lx®***

Wolters Kluwer Health's Source® Lx database is a longitudinal patient data source which captures adjudicated claims across the United States from a mix of prescription claims from commercial plans, Medicare Part D plans, Cash and Medicaid claims. The database contains approximately 4.8 billion paid, non-reversed prescriptions claims linked to over 172 million unique prescription patients of which approximately 70 million patients have 2 or more years of prescription drug history. Claims from hospital and physician practices include over 190 million patients with CPT/HCPCS medical procedure history as well as ICD-9 diagnosis history of which nearly 91 million prescription drug patients are linked to a diagnosis. The overall sample represents 27,000 pharmacies, 1,000 hospitals, 800 clinics/outpatient facilities, and 80,000 physician practices.

## APPENDIX 2: TABLES

**Table 1: Number of Claims for Humira® by Patient Age Groups in U.S. Outpatient Settings, May 2006 to April 2009**

	May 2006 - April 2007		May 2007 - April 2008		May 2008 - April 2009		Total: May 2006 - April 2009	
	CLAIMS	SHARE	CLAIMS	SHARE	CLAIMS	SHARE	CLAIMS	SHARE
Age Group	N	%	N	%	N	%	N	%
Humira Total	246,638	100.0%	328,181	100.0%	424,318	100.0%	999,137	100.0%
0 - 5 years	81	0.0%	137	0.0%	218	0.1%	436	0.0%
6 - 11 years	327	0.1%	463	0.1%	1,209	0.3%	1,999	0.2%
12 - 16 years	957	0.4%	1,951	0.6%	3,733	0.9%	6,641	0.7%
17 + years	232,623	94.3%	310,141	94.5%	401,670	94.7%	944,434	94.5%
AGE MISSING	12,650	5.1%	15,489	4.7%	17,488	4.1%	45,627	4.6%

Wolters Kluwer: Source Lx®. Extracted 8/09, Years 2006-2009. File: Humira Orencia Counts 20090811 my edits.xls

**Table 2: Number of Patients for Humira® by Patient Age Groups in U.S. Outpatient Settings, May 2006 to April 2009**

	May 2006 - April 2007		May 2007 - April 2008		May 2008 - April 2009		Total: May 2006 - April 2009	
	PATIENTS	SHARE	PATIENTS	SHARE	PATIENTS	SHARE	PATIENTS	SHARE
Age Group	N	%	N	%	N	%	N	%
Humira Total	39,132	100.0%	53,902	100.0%	72,719	100.0%	106,092	100.0%
0 - 5 years	19	0.0%	34	0.1%	65	0.1%	95	0.1%
6 - 11 years	67	0.2%	106	0.2%	257	0.4%	352	0.3%
12 - 16 years	210	0.5%	411	0.8%	766	1.1%	1,066	1.0%
17 + years	37,514	95.9%	51,562	95.7%	69,479	95.5%	101,283	95.5%
AGE MISSING	1,355	3.5%	1,870	3.5%	2,280	3.1%	3,553	3.3%

Wolters Kluwer: Source Lx®. Extracted 8/09, Years 2006-2009. File: Humira Orencia Counts 20090811 my edits.xls

**Table 3: Number of Claims for Top 20 Diagnoses For Humira® for the Pediatric Population (Age 0-16 years) in U.S. Outpatient Settings, May 2006 to April 2009**

		May 2006 - April 2009	
		CLAIMS	SHARE
DIAG_CDE	DIAG_DESC	N	%
<b>TOTAL</b>	<b>Total: Patients 0-16 years</b>	<b>2,385</b>	<b>100.0%</b>
555.9	REGIONAL ENTERITIS UNS SITE	1,235	51.8%
558.9	OTH NONINFECTIOUS GASTROENTERITIS	567	23.8%
714.0	RHEUMATOID ARTHRITIS	526	22.1%
716.90	UNS ARTHROPATHY SITE UNS	326	13.7%
555.0	REGIONAL ENTERITIS SMALL INTESTINE	209	8.8%
696.1	OTH PSORIASIS	177	7.4%
720.0	ANKYLOSING SPONDYLITIS	87	3.6%
714.9	UNS INFLAMMATORY POLYARTHROPATHY	54	2.3%
716.97	UNS ARTHROPATHY ANKLE/FOOT	17	0.7%
716.94	UNS ARTHROPATHY HAND	11	0.5%
716.99	UNS ARTHROPATHY MULT SITES	10	0.4%
716.95	UNS ARTHROPATHY PELVIS/THIGH	6	0.3%
716.96	UNS ARTHROPATHY LOWER LEG	6	0.3%
716.98	UNS ARTHROPATHY OTH SITES	6	0.3%
715.97	OSTEOARTHROSIS UNSP ANKLE/FOOT	5	0.2%
716.93	UNS ARTHROPATHY FOREARM	4	0.2%
716.91	UNS ARTHROPATHY SHOULDER	3	0.1%
716.92	UNS ARTHROPATHY UPPER ARM	3	0.1%
722.6	DEGENERATION IV DISC SITE UNS	2	0.1%
715.96	OSTEOARTHROSIS UNSP LOWER LEG	1	0.0%

Wolters Kluwer: Source Lx®. Extracted 8/09, Years 2006-2009. File: Copy of Humira Orenica 20090818\_0-16 grp(3).xls

**Table 4: Number of Claims by Prescriber Specialties for Humira® for the Pediatric Population (Age 0-16 years) in U.S. Outpatient Settings, May 2006 to April 2009**

	May 2006 - April 2009	
Patient Age 0-16 years	CLAIMS	SHARE
Specialty Description	N	%
Total: Patients 0-16 years	2,385	100.0%
PEDIATRICS	508	21.3%
PEDIATRIC GASTROENTEROLOGY	384	16.1%
PEDIATRIC RHEUMATOLOGY	339	14.2%
RHEUMATOLOGY	290	12.2%
GASTROENTEROLOGY	227	9.5%
DERMATOLOGY	100	4.2%
OTHER SPECIALTY	18	0.8%
INTERNAL MEDICINE	16	0.7%
PEDIATRIC ALLERGY	16	0.7%
ALLERGY AND IMMUNOLOGY	11	0.5%
FAMILY MEDICINE	10	0.4%
INTERNAL MEDICINE/PEDIATRICS	10	0.4%
UNSPECIFIED WALSH	9	0.4%
FAMILY PRACTICE	7	0.3%
DERMATOPATHOLOGY	6	0.3%
GENERAL PRACTICE	6	0.3%
ADOLESCENT MEDICINE	4	0.2%
PEDIATRIC CARDIOLOGY	4	0.2%
SELECTIVE PATHOLOGY	4	0.2%
IMMUNOLOGY	3	0.1%
RADIOLOGY ONCOLOGY	3	0.1%
CHILD NEUROLOGY	2	0.1%
OBSTETRICS AND GYNECOLOGY	2	0.1%
PEDIATRIC CRITICAL CARE MEDICINE	1	0.0%
CARDIOVASCULAR DISEASES	1	0.0%
DENTIST	1	0.0%
HEPATOLOGY	1	0.0%
INTERNAL MED, CARD. ELECTROPHYSIOLOGY	1	0.0%
OCCUPATIONAL MEDICINE	1	0.0%
PEDIATRIC ENDOCRINOLOGY	1	0.0%
UNKNOWN	399	16.7%

Wolters Kluwer: Source Lx®. Extracted 8/09, Years 2006-2009. File: Humira Orencia Specialty Tables 20090820.xls